

THE QUEST FOR *Mastery*

*What practices do high-performing
urban schools have in common?*

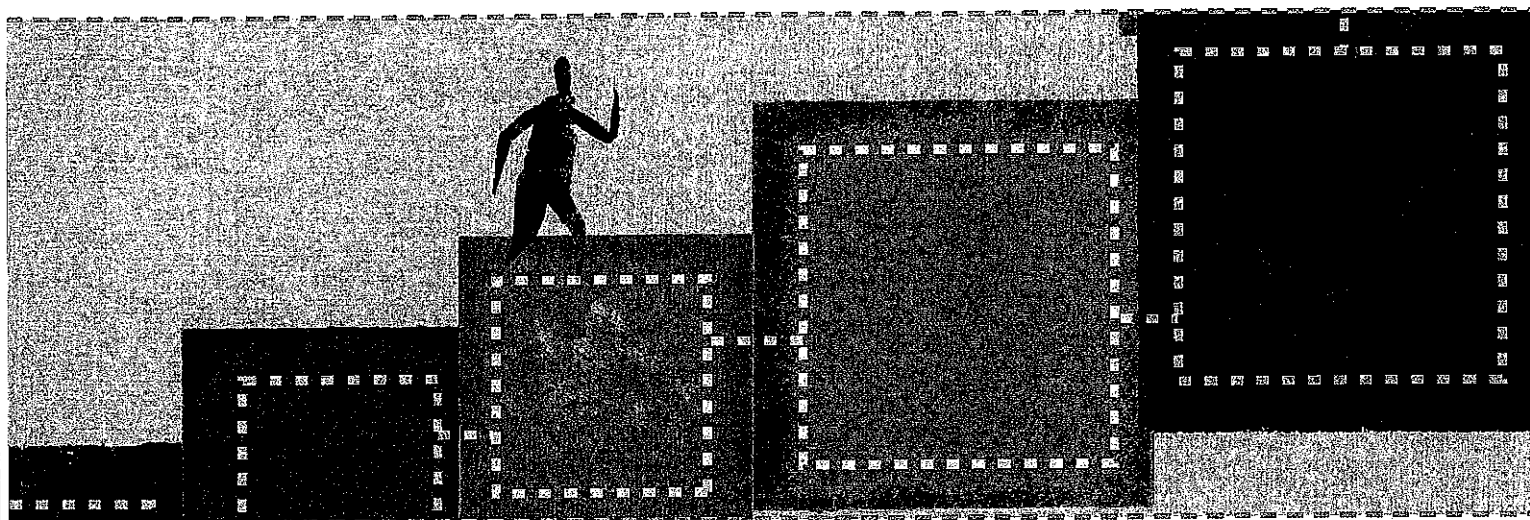
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What drives decisions about what gets taught, how, and to whom? In some districts, teachers base these decisions on the organization of textbooks, the timing of pacing charts, or lesson plans from prior years. Often, they base curricular decisions on content that needs to be “covered.” In contrast, in many of the United States’ highest-performing urban schools that we have observed, teachers are making textbooks, workbooks, curriculum guides, and pacing charts secondary considerations. Their purpose is to teach in a way that is driven primarily by a commitment to ensuring that all students master agreed-on essentials. This distinction is not merely philosophical or theoretical. It is grounded in everyday practices.

Since 2005, the National Center for Urban

School Transformation has identified and studied more than 90 urban schools that achieve impressive results. (See criteria at <http://ncust.org/wp/awards/criteria>.) These elementary, middle, and high schools do not use selective admission criteria, yet their achievement results exceed state averages. These schools boast high levels of achievement for every demographic of students they serve, including English language learners.

We have identified specific practices that characterize teaching in these schools (Johnson, Perez, & Uline, 2012). Many of these practices relate to the quest for mastery in everyday instruction. In particular, this means (1) educators plan lessons so that all students are likely to achieve a depth of understanding about a specific concept or idea and (2) educators are objective-driven as they strive to help every student achieve mastery.



Planning for Depth of Understanding

What It Is and Isn't

This type of planning aims to get students to demonstrate a thorough understanding of a set of concepts or skills. For example, a team of teachers might plan lesson activities that guide their students to explain accurately why each step in the process of solving a linear equation makes sense.

This type of planning is *not* getting students to demonstrate mere surface-level understandings, such as when a teacher focuses on having students follow the steps for determining the value of x in a linear equation. In activities that guide students to deeper understanding, students will not just complete the steps and solve the equation; they will explain each step and the logic associated with it.

How It Looks in Classrooms

When we observed classrooms, we asked students, "What did you learn in this lesson?" In typical schools, we frequently heard one- or two-word answers that named the lesson topic, like "polyhedrons," "the American Revolution" or "osmosis." Even when we probed, students tended to recite one-line facts, such as "The colonists

fought the British" or "You multiply the base times the height," leaving us wondering what students really understood.

In the high-performing urban schools we studied, teachers were not satisfied when students memorized facts, recited formulas, completed algorithms, or performed other rote functions. Teachers also wanted students to demonstrate deeper levels of understanding by explaining concepts, describing relationships, evaluating arguments, analyzing perspectives, and performing other tasks that required complex thinking.

For example, at Horace Mann Dual Language Magnet School in Wichita, Kansas, 5th graders exiting a science lesson (taught in Spanish) explained that they learned about the forces that work together to make a volcano erupt. They talked about the massive pressure that builds as the earth's plates shift. They eagerly described how gases, magma, and rock escaping from the earth's surface caused different kinds of eruptions. The students had learned more than a few random facts. They had learned important concepts that would be useful as they developed understanding of other scientific phenomena.

The pursuit of this depth of understanding takes time. But teachers at many of these schools perceived that they had more time because they were not trying to cover as many standards and objectives. Also, teachers frequently commented that they spent less time reviewing and reteaching.

How It Looks in Planning Meetings

Teachers in the high-performing urban schools we studied served students with diverse academic abilities, varying social and emotional needs, and an array of language backgrounds. These teachers believed their students were able to master challenging academic standards; however, they knew that they must provide outstanding instruction to ensure that mastery was achieved. Thus, the journey toward mastery was meticulously planned. Teachers worked together in grade-level teams, departments, or course-specific teams to plan instruction that was likely to result in high rates of mastery.

For these teachers, regular collaborative planning was an engine that drove the quest for mastery. Their clear agendas and training in conducting effective professional learning communities helped maximize the

benefit of collaboration. Planning was not a joint search for useful worksheet pages, interesting video segments, or fun activities related to the lesson topic. Instead, it was an intense, deliberate, cooperative process for defining content, materials, and methods that were most likely to lead all students to mastery. Recognizing that they often had only a few days to get students to understand a complicated concept, teachers worked together to make each minute count. Planning produced a detailed road map, charting a path from current levels of understanding to desired levels of mastery (Wiggins & McTighe, 2005).

During their meetings, teachers in the high-performing schools determined what level of understanding they wanted students to achieve. They also pushed themselves to specify what they would accept as evidence that their students had achieved that deep understanding. Teachers at Highland Elementary in Montgomery County, Maryland,

decided, for example, that in a lesson on making inferences, they would not only have their primary-grade students make inferences about a passage, but also have them evaluate the quality of their inferences on the basis of information found in the text. Thus, students would be demonstrating their ability both to make inferences and to analyze how clearly a passage supported the inferences they made.

During collaboration meetings at Magnet Traditional School in the Phoenix Elementary School District in Arizona, teachers asked themselves questions like these:

- What specific objectives must

students achieve to master this standard?

- What words must become part of the students' vocabulary if they are to discuss this concept comfortably?

- What misconceptions are likely, and what can we do to prevent or minimize these misconceptions?

- How can we present this concept so that students see how it connects with their backgrounds and prior knowledge?

Such questions shaped collaboration meetings in many high-performing urban schools. Teachers used these

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questions to design powerful lessons that were more likely to ensure students mastered each objective taught.

Objective-Driven Lessons

What It Is and Isn't

Every aspect of an objective-driven lesson is designed to lead all students toward mastery of the lesson objective. These lessons go beyond displaying an objective as an act of compliance or routine. Posting on the board that "students will be able to describe the relationship between the earth's revolution around the sun and the four seasons" and having students read a textbook chapter on seasons and

answer the five questions at the end is not objective-driven instruction.

An objective-driven version of this lesson might require teachers to create strategies to help students describe the relationship between the earth's revolution around the sun and the four seasons. The teachers could identify activities that will help students use key vocabulary words, such as *axis*, *equator*, and *revolution*. Students might model the relationship between the sun and the earth during different seasons, first for their state and then for various other locations,

such as Alaska, Ecuador,

Kenya, and Antarctica.

As they implement the lesson, teachers would monitor whether students were engaged and take note of what students appeared to understand and not understand. They would then respond with additional examples or models.

How It Looks in Classrooms

In the high-performing urban schools we studied, objectives were specific

destinations to which teachers promised they would take their students. In typical schools, some teachers state an objective as an indicator of what they will cover, such as "photosynthesis," "pages 128–130," or "English Standard 3: Compare and Contrast." In contrast, the teachers in high-performing urban schools specified precisely what students would be expected to understand or demonstrate before the lesson ended.

For example, at MacArthur High School in Aldine Independent School District in Houston, Texas, teachers posted three-part objectives that specified (1) what students would

learn, (2) how they would learn it, and (3) how they would know they learned it. The objective influenced every aspect of the lesson—how teachers introduced concepts, how they engaged students in activities, which materials they used, how they integrated technology, what vocabulary they emphasized, what questions they asked, and what they asked students to demonstrate.

For example, an algebra lesson might have focused on an objective specifying that students would be able to use a real data set that represented a linear equation to make predictions about a variable. Students would learn by graphing the linear equation (by hand and using the graphing calculator) and by using an algorithm to determine the value of one of the variables. Students would know they had achieved mastery if their hand-drawn graph, the calculator-generated graph, and their linear equation all yielded the same accurate information that the student could describe clearly.

At another Texas school, Eastwood Middle School in El Paso's Ysleta Independent School District, teachers tailored their lessons to increase the likelihood that students would master the objective, not according to the order of lessons in a textbook, their file of worksheet pages, the favorite unit from years past, or the availability of a fun piece of software.

One lesson objective focused on helping students conceptualize strategies for calculating negative space in round objects. To help their 8th grade students relate to the concept, teachers brought clear canisters of tennis balls to class and helped students determine the volume of space in the cylindrical canister. Then they engaged students in considering strategies for determining the volume of space left after the tennis balls were placed in the cylinder.

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We found teachers using a wide array of strategies to engage all students—including students who were behind academically, students with behavioral and emotional challenges, students who were shy and reluctant to engage, and students who were English learners. Teachers frequently challenged students to explain their thinking and share their ideas. Instead of calling on students who raised their hands, teachers tried to ensure that every student participated by having students write responses on individual whiteboards, organizing short small-group conversations, calling on students randomly; using electronic polling, or engaging students in Socratic seminars. Fisher and Frey (2007) describe a similar array of strategies for checking each student's levels of understanding.

Being objective-driven means not allowing students to sit passively and fail. At Kearney School of International Business in California's San Diego Unified School District, students were required to engage actively, contribute to group tasks, and participate in discussions. One transfer student, in his previous school, had become accustomed to sitting quietly in class with his head on his desk and his hood over his head. When the Kearney principal pulled the student

out of class, the student protested, "What? I wasn't doing nothing!" The principal explained, "You're right. You weren't doing anything, and that's not acceptable here." At Kearney, teachers did not ignore disengaged students. Instead, they pushed those students to participate actively.

When students participated, teachers in these high-performing schools observed closely, monitored student understanding, and adjusted instruction accordingly. Often, teachers tried to adapt their presentation of a concept to better connect it to students' interests, backgrounds, learning styles, prior experiences, or culture.

How It Looks in Planning Meetings
Teachers realized that student participation might not be sufficient to generate mastery if the participation did not promote meaningful engagement in the lesson. However, meaningful student participation does not occur by chance. Teachers deliberately planned to ensure that all their students would engage meaningfully.

For example, teachers at Jim Thorpe Fundamental School in the Santa Ana Unified School District in California considered how special education personnel in general education classrooms could help students with disabilities master challenging academic content. They planned lessons that tapped the interests and resonated with the learning strengths of each student. They thought about how they could ensure that students with disabilities would engage meaningfully and develop an understanding of the information presented through general classroom instruction. Special educators and general educators worked in concert to facilitate each child's mastery of key objectives. As a result, in both mathematics and reading, students with disabilities at

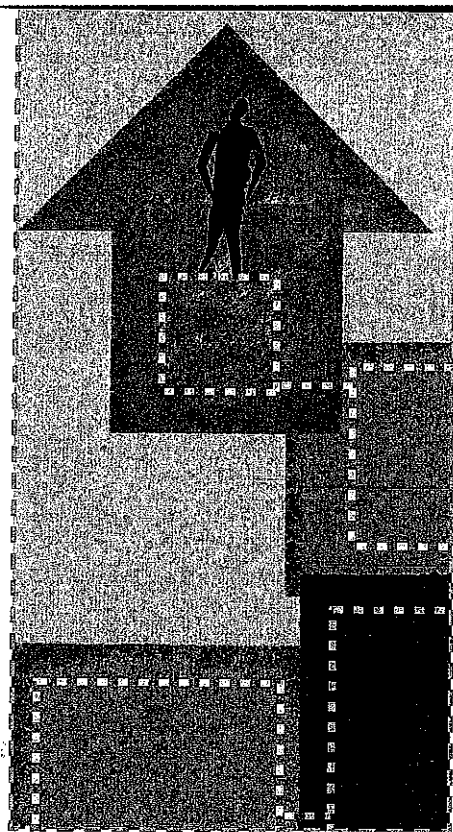
Jim Thorpe performed at levels comparable to all students in California.

Teachers at Horace Mann Dual Language Magnet School in Wichita, Kansas, planned lessons in both English and Spanish that were likely to lead students to understand crucial concepts, regardless of their home language. Teachers did not merely present content and hope that students understood. Instead, teachers sought, found, tried, and refined teaching practices that would build deep understanding of the lesson content, while building students' language skills in English and Spanish.

Teachers frequently engaged students in explaining concepts verbally as best they could in whichever language (Spanish or English) was the language of instruction for the class. In many classes, students were continually asked to use the language of instruction to explain what had just been taught. As a result, native Spanish speakers excelled in classes taught in English, and native English speakers succeeded in academic classes taught in Spanish. Students learned challenging concepts, and they learned how to discuss those concepts in both English and Spanish.

In some of the high-performing urban schools studied, teachers used technology to help them ensure that all students achieved the lesson objective. At Revere High School in the Revere Public Schools near Boston, Massachusetts, teachers engaged students daily in using iPads to pursue mastery of lesson objectives. Students were not simply playing with or exploring the technology. Instead, students used their iPads in ways that made important learning objectives come to life.

For instance, Revere students used their iPads to access the Internet and find multiple sources of information that yielded varying perspectives.



Students were proud of their ability to access information themselves and generate deeper understandings after examining multiple perspectives. Achievement at Revere improved, in part, because objective-driven teachers planned how the Internet could be a powerful tool for making everyday learning objectives more interesting.

Ultimately, objective-driven teachers exhibited a "whatever it takes" attitude when it came to helping students. They were not willing to rely on lessons from textbook publishers who had never met their students. And they were not willing to depend on lessons that had previously "worked" to generate a bell curve of test scores.

A Schoolwide Commitment

The constant pursuit of mastery requires a high level of energy from both teachers and students. In high-performing urban schools, educators help one another and their students sustain this level of energy through strong, positive collaborative efforts. Educators feel like part of a team and know that their administrators and fellow teachers want them to succeed. Thus, they are often eager to provide support to their colleagues. Frequent

acknowledgement of progress helps teachers see they are making a difference.

In a similar vein, students in high-performing urban schools perceive that they are respected, appreciated, and valued. They know their teachers believe in them and want them to succeed, so they are willing to invest the effort to master challenging academic standards. Teachers in these schools lead students to expect academic success. Students know that they are being taught rigorous academic content. They see themselves developing deeper understanding of this challenging content, and they become excited about their potential as scholars. ■

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